

A CAMERA FOR ANTARCTICA
Revised Edition 1976

Antarctica Division D.S.I.R., Christchurch,
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POLARPAM

A CAMERA

FOR

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Antarctic Division D.S.I.R.

Christchurch


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INTRODUCTION

This booklet is not issued for the photographic expert, but as a guide to those who are buying or using a camera for the first time in the extreme conditions which prevail in Antarctica.

There are two main problems - cold and wind. As a generalisation most cameras will work satisfactorily down to a temperature of -20°C , by protecting them when not in use inside clothing. At temperatures below -20°C the following things can occur, certain plastics and leather can become stiff or even brittle, lubricating oil will congeal, metal parts become dangerously cold and the film brittle. Wind, as well as having a greater cooling effect on equipment, also carries fine drift snow and/or dust, which can be blasted through the smallest opening causing damage and cleaning problems.

THE CAMERA

Still Photography

Whether you decide on a compact, fixed lens camera, i.e. Instamatic type, or a reflex camera with interchangeable lenses, will depend largely on your own personal preference, the amount you wish to spend and your photographic requirements, immediate and in the future. However, the following points should be taken into consideration:-

1. Ease of Operation:

In very cold conditions it is often necessary to be able to operate the camera wearing gloves or mitts, therefore controls must be easily accessible and uncomplicated. The two most important are the shutter release, which should preferably be the press down type mounted on top of the camera, and the film advance lever which should be easily accessible and of the one stroke type so that a minimum strain is put on the film.

2. Outside Finish:

A rough black finish is preferable, as this will absorb a maximum amount of heat from the sun's rays, helping to maintain the internal temperature of the camera albeit slightly.

3. Focussing:

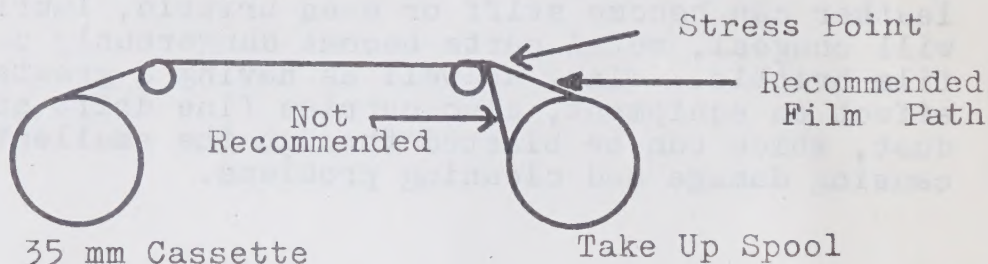
Because of cold or gloved hands, the focussing ring is hard to use and should be as heavily ribbed as possible to provide a good grip.

4. Exposure Meter:

Many cameras now have a built-in exposure meter coupled automatically to the shutter mechanism. These cameras should also have a manual control so that in case of failure the camera could be used with a separate meter which is a worthwhile spare to carry. Always buy a good quality light meter, the extra expense is well worth the results.

5. Film Path:

The path of the film inside the camera is of importance in low temperatures, as a direct path with no sharp bends will decrease the chances of a cold brittle film breaking.



6. The Shutter:

The shutter is the most likely part of the camera to cause mechanical trouble at low temperatures. The metal leaves and the springs that actuate them lose some of their tensile strength at low temperatures, slowing down movement and lengthening exposures. There is little that can be done to avoid this, except to keep the camera as warm as possible.

Cine Photography

1. Film Path:

The film necessarily undergoes much sharp jerking during exposure and it is important to ensure that the chance of fracturing or tearing of the film is reduced to a minimum so it is advisable to have the smoothest most direct drive.

2. Loading:

Because of the difficulty of threading film through the maze of sprockets and guide wheels with cold hands, it is perhaps an advantage to have magazine loading.

3. Drive:

There is a choice between battery and spring driven cameras, both are prone to problems at low temperatures, but because of the chance of spring breakage, the battery model is preferable, as warmed spares are fairly easily carried.

4. Finish and ease of access of controls should be looked for as in still cameras. The shutter is less likely to cause trouble, a different principle being involved in it's action, but one of part rubber construction should be avoided.

WINTERISATION

The process called winterisation is met with frequently in articles on cold weather photography and means that the normal camera lubricants lose their efficiency below -20°C , and can cause camera seizure, have to be removed and either the camera left dry or silicone or graphite lubricants used. This is an expert's job, usually done by the manufacturers and is very expensive. The benefits obtained from winterisation are debatable.

ACCESSORIES

1. Lens Hood:

Because of the low angle of the sun and strong reflection from snow and ice surfaces, a deep lens hood is advisable. This also protects the lens during photography in blowing snow.

2. Filters:

The use of filters will depend upon the film being used and the effect desired, especially for black and white photography. Information on these can be obtained from photographic manuals or dealers. But because of the poor absorption of ultra-violet light in Antarctic regions, a U.V. filter should be kept permanently on the lens. It also serves as a useful protection for the lens itself.

A neutral density filter is useful if the camera is unable to be set at a fast speed because of the intense light. This filter will reduce the amount of light reaching the film by 2 f stops.

3. Camera Cases:

Leather cases will become stiff and even brittle in extreme cold. Breakages can be avoided by treatment with a good quality wax leather dressing.

AIDS AND IMPROVEMENTS

1. Gloves:

Silk or fine cotton gloves will protect the hands from metal surfaces and still allow reasonable freedom for adjustment of controls.

2. Covering Exposed Metal:

As a safeguard against cold burn from exposed metal surfaces, they can be covered with plastic insulating tape, particularly the shutter release and the area around the viewfinder. This also protects the finish of the camera from the sand blasting effect of the Polar regions.

3. Zips:

Although zips are not recommended, many soft leather cases have them. They should preferably be of metal as this is less likely to break than plastic. The opening tab should have an extra piece of leather sewn on to it so that it can be gripped with gloves.

4. Straps:

It can be useful to remove leather and plastic straps and replace them with nylon webbing while in the Antarctic. This web should be extra long to enable the camera to be worn over bulky Antarctic clothing.

5. Focussing:

To facilitate focussing it is useful to have the focussing ring drilled and tapped to take a threaded metal bar to give better grip with gloved hands. This should be done by a camera technician.

6. Camera Protection:

A strong polythene bag, which will completely cover the camera equipment and seal firmly, will protect it from snow and dust. On bringing the camera into the warmth of a building, condensation will take place on the bag and not the camera. Cameras brought inside out of the cold should be returned to internal temperature as slowly as possible, either by leaving in unheated rooms or gradually raising the camera from floor level to storage level in huts with a temperature gradient. If a camera does have condensation form on it, then it should be allowed to completely dry out before taking it into the cold again.

FILMS

Type:

The make of film you use is a personal preference and none will be recommended. The high light intensity of Antarctica virtually demands a B & W film with a slow speed; films in the range of 20 ASA - 125 ASA are ideal. The P.X. at McMurdo stock only Kodak film, but as stocks there run down it is safer to bring your own supply, as some makes of film can be bought duty free in New Zealand. Remember that film becomes hard, brittle and the edges very sharp at low temperatures and great care should be taken in handling it.

Exposure:

A good photographic manual, such as the Ilford Manual of Photography, will give you the best advice on exposure and the use of your meter, but two points are worthy of mention. When using your meter correctly you should trust it and believe what it says. On any shot which is still in doubt, bracket your exposures, i.e. if you have a reading at f11 at 1/250, take it also at f8 and f16. Remember you may only be there once so the extra film used is a small price to pay.

ACKNOWLEDGEMENT

This publication is largely based on an earlier edition by D. Davidson.

PHOTOGRAPHIC BOOKS

Christchurch

1. Photography on Expeditions - D.H.O. John

Pamphlets:-

1. Antarctic Photography - G. Mannering
2. Antarctic Photography - A.J. Heine
3. Photographing in Snow - D. McBride
4. Black and White Photography in the Antarctic - W.G. Croll
5. Photography under Arctic conditions - Kodak.

Scott Base

1. Newnes Photographers Pocket Reference Book
2. The Theory of Photographic Process
3. Indoor Photography
4. Kodak Reference Handbook - Vol. I
5. Kodak Data Book - Vol. III
6. Light and Colour
7. Cameras - The Facts
8. Close-up in Colour
9. Encyclopaedia of Colour Photography
10. Guide to Rollei Photography
11. Lighting for Cine
12. Photographic Composition
13. Portraits in Colour
14. Portrait Manual
15. Photography on Expeditions
16. The Ilford Manual of Photography.

APPENDIX II

Purchasing a New Camera Duty Free

Antarctic Division are not responsible for the collection of cameras or any other dutyfree goods and dispatch to the aircraft you must arrange this yourself with the shop concerned. Always deal with a reputable dealer.

APPENDIX III

Taking Cameras Purchased in New Zealand to the Antarctic

If you already own a camera you must obtain a certificate of export form Her Majesty's Customs. This will enable you to return the camera to New Zealand without paying duty. This applies to any dutiable item taken out of the country.

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French summary.
References: pp. 2195-2196

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